

REMARKS

a) Summary of Interview

Applicants' attorney thanks the Examiner for the brief telephone interview granted on 10 February 2004. Applicants' attorney proposed combining the limitations of previous Claim 8 into all of the independent claims, and presented arguments as to why the claims so amended should be patentable. The Examiner indicated that an obviousness rejection would be maintained for the reasons previously presented with respect to Claim 8, and indicated that further amendments would be needed in order to secure allowance of the claims. No agreement was reached.

Accordingly, independent Claims 1, 18 and 28 have been amended as follows:

- a) to recite that the first superabsorbent polymer precursor composition is added as microdroplets having a diameter of about 10 to about 1000 microns (supported at page 13, lines 16-18),
- b) to recite that the first superabsorbent polymer precursor composition is added using a non-contact printing process (supported at page 13, lines 6-7 and 13-16),
- c) to recite that the second superabsorbent polymer precursor composition is added as microdroplets having a diameter of about 10 to about 1000 microns (supported at page 13, lines 16-18),
- d) to recite that the second superabsorbent polymer precursor composition is added as microdroplets having a diameter of about 10 to about 1000 microns (supported at page 13, lines 6-7 and 13-16), and
- e) to recite that the first and second superabsorbent polymer precursor compositions chemically react on or in the fibrous web to form particles of superabsorbent polymer having a dry diameter of about 10 to about 1000 microns (supported at page 24, lines 11-12).

The independent claims recite precisely the same size range for the microdroplets of first superabsorbent precursor composition, the microdroplets of second superabsorbent precursor composition, and the resulting (post-reaction) superabsorbent polymer particles. As explained on the telephone, the only practical way to apply microdroplets of a first superabsorbent precursor composition and a second superabsorbent precursor composition having a particular size range, and react them to obtain superabsorbent polymer particles having the same size range, is to apply the microdroplets of first superabsorbent precursor composition and the microdroplets of second superabsorbent precursor composition in the same locations on the fibrous web. This can be accomplished using a non-contact printing process for each of the precursor compositions as recited in the claims. This cannot be accomplished using a variety of other application processes which are less precise.

b) Claim Rejections Based on 35 U.S.C. §102(b)/§103(a)

The Examiner rejected Claims 1-3, 10, 12-19 and 21-17 under 35 U.S.C. §102(b) as anticipated by, or under 35 U.S.C. §103(a) as obvious over U.S. Patent 4,892,754 to Itoh et al. The rejection is respectfully traversed.

The Examiner cites Col. 6 lines 49-59 of Itoh et al. as describing a method by which two precursor compositions are applied uniformly to a substrate, and reacted to form superabsorbent polymer. The uniform application is accomplished by spraying, coating or the like. Applicants understand the term “applied uniformly” to mean that enough solution is applied to form an even coating on the substrate. For instance, if one applies enough of a solution by spraying, a uniform coating may result (as opposed to an uneven coating characterized by spaces between microdroplets).

Even if less of the solutions were sprayed, resulting in microdroplets instead of a uniform coating, the microdroplets would be randomly disposed on the substrate. Because microdroplets applied by spraying are randomly disposed, the microdroplets of one solution would not land in the same place as the microdroplets of the other solution. Accordingly, random spraying would not result in particles of superabsorbent polymer

having the same size range as the microdroplets of the first precursor composition and the microdroplets of the second precursor composition, as recited in independent Claims 1, 18 and 28.

The Examiner refers to Col. 8 lines 33-39 of Itoh et al. as describing application of one precursor composition in a mist form. As with spraying, a mist application would result either in a uniform coating or spaced, randomly disposed microdroplets, depending on the amount of the mist. Application of both precursor compositions by mist or spraying would not lead to a product in which microdroplets of both compositions coincide to produce superabsorbent polymer particles having the same size range as both types of microdroplets.

Independent Claims 1, 18 and 28 further require application of the microdroplets of each of the first and second precursor compositions using a non-contact printing process. The non-contact processes permit application of the microdroplets of each precursor composition in precisely the same locations, thereby permitting formation of superabsorbent polymer having the same size range as the microdroplets. Use of non-contact printing processes for both precursor compositions also minimizes the amount of unreacted monomer in the product. Because the non-contact printing processes can apply both precursor compositions as microdroplets in the same location, and the two precursor compositions react upon contact with each other, the claimed processes facilitate a more complete reaction. Because each printing process is a non-contact process, there is no compression or similar disruption of the fibrous web substrate.

The Examiner rejected Claims 28-31 under 35 U.S.C. §102(b) as anticipated by Itoh et al. Independent Claim 28 has been amended in the same fashion as independent Claims 1 and 18. Differences between Claims 1 and 18 and the prior art, discussed above, are equally applicable to Claim 28. Claims 29-31 depend from Claim 28, and should be patentable for at least the same reasons.

The Examiner rejected Claims 4-6, 11, 20 and 32 under 35 U.S.C. §103(a) as obvious over Itoh et al. These claims depend from independent Claims 1, 18 or 28, and are patentable for at least the same reasons.

More importantly, the Examiner rejected Claim 8 under 35 U.S.C. §103(a) as obvious over Itoh et al. in view of U.S. Patent 5,248,524 to Soderlund and U.S. Patent

5,547,747 to Trokhan et al. The limitations of previous Claim 8, and additional limitations, have been incorporated into Claims 1, 18 and 28. Therefore, this rejection will be discussed relative to Claims 1, 18 and 28.

The differences between Itoh et al. and the independent claims are discussed above. The combination of Itoh et al., Soderlund and Trokhan et al. do not overcome the differences. Soderlund discloses an apparatus and method for effecting zoned deposition of superabsorbent particles in a fibrous web. Soderlund has nothing to do with Applicants' invention because the disclosed superabsorbent particles are formed before they are deposited on the fibrous web. Furthermore, Soderlund is cited by the Examiner as disclosing spraying of superabsorbent particles. As explained above, Applicants' claims require non-contact printing which is different (and far more precise) than spraying.

Trokhan et al. discloses a contact printing process which requires embossing and thus, requires substantial deformation of the fibrous web substrate. Using this process, a fibrous web is embossed to cause raised protuberances and a liquid superabsorbent precursor is applied through a contact roller directly onto the elevated portions of the protuberances. The process involves precise deposition of a liquid precursor onto the raised protuberances. However, the deposition pattern is defined by and, thus, limited by the topography of the substrate.

Trokhan et al. does not disclose using a non-contact printing process, which would not cause or require substantial distortion of the substrate topography. Trokhan et al. also does not disclose separately applying two superabsorbent polymer precursor compositions using a printing process. It would not have been obvious to use the process of Trokhan et al. twice (in sequence, for instance) to effect the printing/deposition of two precursor compositions. The reason is that the process causes substantial distortion of the substrate in a controlled fashion. If the process were repeated twice using the same substrate, the substrate would be distorted twice, and the controlled distortions (protuberances) resulting from the first application would be overcome or compromised by the second application. Applicants' claims, by contrast, do not require any distortion of the fibrous web substrate.

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Applicants believe that the claims, as now presented, are in condition for allowance. Again, Applicants thank the Examiner for the telephone interview. Reconsideration and allowance of the claims are requested.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Maxwell J. Petersen".

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